CLAIM AMENDMENTS

1. (Currently amended) A NO_X potentiometric sensor for determining the concentration of NO_X in a gas stream comprising:

a tube, said tube having an end, an interior and an exterior;

a cap member comprising yttria-stabilized zirconia disposed on said end of said tube so as to close said end of said tube, said cap member having an interior surface exposed to the interior of said tube and an exterior surface~~, said cap member comprising yttria-stabilized zirconia~~;

a first electrode disposed on said interior surface of said cap member~~, said first electrode covered by a layer comprising substantially pure zeolite~~; [[and]]

a second electrode disposed on said exterior surface of said ~~cap member.~~ cap member; and

a zeolite coating disposed on said first electrode, said zeolite coating capable of oxidizing NO in said gas stream to NO_2 such that said first electrode is exposed to a higher concentration of NO_2 than said second electrode.

2. (Currently amended) The NO_X potentiometric sensor according to claim 1 additionally comprising a potentiometer, said potentiometer in electrical communication with said first electrode and said second electrode so as to measure a potential difference between said first electrode and said second electrode.

3. (Currently amended) [[A]] The NO_X potentiometric sensor according to claim 1 wherein said tube comprises alumina.

4. (Currently amended) [[A]] The NO_X potentiometric sensor according to claim 1 wherein said first electrode comprises a material selected from the group consisting of platinum, gold and Cr_2O_3.

5. (Currently amended) [[A]] The NO_X potentiometric sensor according to claim 1 wherein said second electrode comprises a material selected from the group consisting of platinum, gold and Cr_2O_3.

6. (Currently amended) [[A]] The NO_X potentiometric sensor according to claim 1 wherein said ~~substantially pure~~ zeolite is ~~substantially pure~~ zeolite Y.

7. (Currently amended) A NO_X potentiometric sensor for determining the concentration of NO_X in a gas stream comprising:

a tube comprising yttria-stabilized zirconia, said tube having an exterior surface and an interior surface;

a first electrode disposed on said exterior surface of said tube;

a second electrode disposed on said interior surface of said tube; and

a ~~substantially pure~~ zeolite covering ~~at least one~~ said ~~electrode.~~ first electrode, said zeolite coating capable of oxidizing NO in said gas stream to NO_2 such that said first electrode is exposed to a higher concentration of NO_2 than said second electrode.

8. (Currently amended) The NO_X potentiometric sensor according to claim 7 additionally comprising a potentiometer, said potentiometer in electrical communication with said first electrode and said second electrode so as to measure a potential difference between said first electrode and said second electrode.

9. (Currently amended) [[A]] The NO_X potentiometric sensor according to claim 7 wherein said first electrode comprises a material selected from the group consisting of platinum, gold and Cr_2O_3.

10. (Currently amended) [[A]] The NO_X potentiometric sensor according to claim 7 wherein said second electrode comprises a material selected from the group consisting of platinum, gold and Cr_2O_3.

11. (Currently amended) [[A]] The NO_X potentiometric sensor according to claim 7 wherein said ~~substantially pure~~ zeolite is ~~substantially pure~~ zeolite Y.

12. (Currently amended) [[A]] The NO_X potentiometric sensor for determining the concentration of NO_X in a gas stream comprising:

a substrate comprising yttria-stabilized zirconia;

a first electrode disposed on said substrate;

a second electrode disposed on said substrate; and

a ~~layer comprising substantially pure~~ zeolite coating disposed on said second ~~electrode.~~ electrode, said zeolite coating capable of oxidizing NO in said gas

stream to NO_2 such that said second electrode is exposed to a higher concentration of NO_2 than said first electrode.

13. (Currently amended) The NO_X potentiometric sensor according to claim 12 additionally comprising a potentiometer, said potentiometer in electrical communication with said first electrode and said second electrode so as to measure a potential difference between said first electrode and said second electrode.

14. (Currently amended) [[A]] The NO_X potentiometric sensor according to claim 12 wherein said first electrode comprises a material selected from the group consisting of platinum, gold and Cr_2O_3.

15. (Currently amended) [[A]] The NO_X potentiometric sensor according to claim 12 wherein said second electrode comprises a material selected from the group consisting of platinum, gold and Cr_2O_3.

16. (Currently amended) [[A]] The NO_X potentiometric sensor according to claim 12 wherein said ~~substantially pure~~ zeolite is ~~substantially pure~~ zeolite Y.

17. (Currently amended) [[A]] The NO_X potentiometric sensor according to claim 12 wherein said substrate, said first electrode and said second electrode are shielded from direct contact by an exhaust gas by a porous member that permits said exhaust gas to travel through said porous member such that said exhaust gas indirectly contacts said

first and said second electrodes, said porous member additionally protecting said substrate, said first and said second electrodes from degradation caused by said exhaust gas.

18. (New) A NO_X potentiometric sensor for determining the concentration of NO_X in a gas stream comprising:

a yttria-stabilized zirconia substrate;

a first electrode disposed on said yttria-stabilized zirconia substrate;

a second electrode disposed on said yttria-stabilized zirconia substrate;

a zeolite coating disposed on said first electrode, said zeolite coating capable of oxidizing NO in said gas stream to NO_2 such that said first electrode is exposed to a higher concentration of NO_2 than said second electrode.

19. (New) The NO_X potentiometric sensor according to claim 18 wherein said first electrode comprises a material selected from the group consisting of platinum, gold, and Cr_2O_3.

20. (New) The NO_X potentiometric sensor according to claim 18 wherein said second electrode comprises a material selected from the group consisting of platinum, gold, and Cr_2O_3.

21. (New) The NO_X potentiometric sensor according to claim 18 wherein said first electrode and said second electrode are constructed from the same material.

22. (New) The NO_X potentiometric sensor according to claim 18 wherein said zeolite is zeolite Y.